



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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MAC3030-8



Expertise Applied | Answers Delivered

Triacs

Silicon Bidirectional Thyristors

Designed primarily for full-wave AC control applications, such as light dimmers, motor controls, heating controls and power supplies; or wherever full-wave silicon gate controlled solid-state devices are needed. Triac type thyristors switch from a blocking to a conducting state for either polarity of applied main terminal voltage with positive or negative gate triggering.

Features

- Blocking Voltage to 250 Volts
- All Diffused and Glass Passivated Junctions for Greater Parameter Uniformity and Stability
- Small, Rugged, Thermowatt Construction for Low Thermal Resistance, High Heat Dissipation and Durability
- Gate Triggering Guaranteed in Four Modes (Quadrants)
- Pb-Free Packages are Available

MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

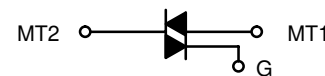
Rating	Symbol	Value	Unit
Peak Repetitive Off-State Voltage (Note 1) ($T_J = -40$ to $+125^\circ\text{C}$, Sine Wave 50 to 60 Hz, Gate Open)	V_{DRM} , V_{RRM}	250	V
On-State RMS Current ($T_C = +70^\circ\text{C}$) Full Cycle Sine Wave 50 to 60 Hz	$I_{T(RMS)}$	8.0	A
Peak Non-Repetitive Surge Current (One Full Cycle, Sine Wave 60 Hz, $T_C = +25^\circ\text{C}$) Preceded and followed by rated current	I_{TSM}	80	A
Circuit Fusing Considerations, ($t = 8.3$ ms)	I^2t	26	A^2s
Peak Gate Power ($T_C = +70^\circ\text{C}$, Pulse Width = 10 μs)	P_{GM}	20	W
Average Gate Power ($T_C = +70^\circ\text{C}$, $t = 8.3$ ms)	$P_{G(AV)}$	0.35	W
Peak Gate Current ($T_C = +70^\circ\text{C}$, Pulse Width = 10 μs)	I_{GM}	2.0	A
Operating Junction Temperature Range	T_J	-40 to +125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to +150	$^\circ\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

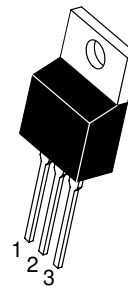
1. V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

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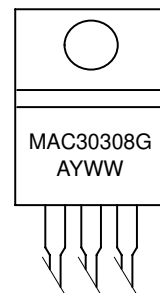
TRIACS 8.0 AMPERES RMS 250 VOLTS



MARKING DIAGRAM



TO-220AB
CASE 221A-07
STYLE 4



MAC3030-8 = Standard Device Code
MAC30308G = Pb-Free Device Code
A = Assembly Location
Y = Year
WW = Work Week

PIN ASSIGNMENT

Pin	Assignment
1	Main Terminal 1
2	Main Terminal 2
3	Gate
4	Main Terminal 2

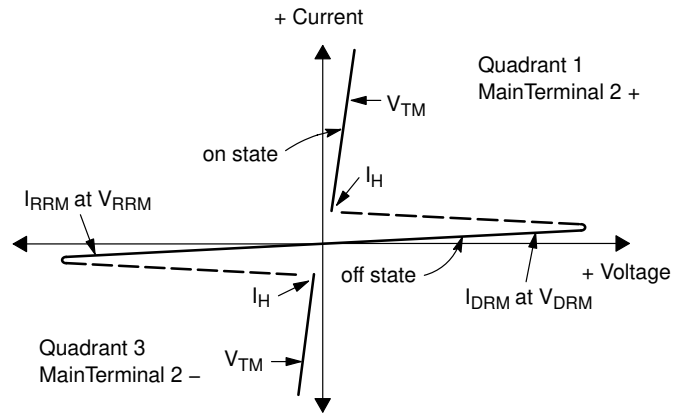
ORDERING INFORMATION

Device	Package	Shipping
MAC3030-8	TO-220AB	500 Units/Box
MAC3030-8G	TO-220AB (Pb-Free)	500 Units/Box

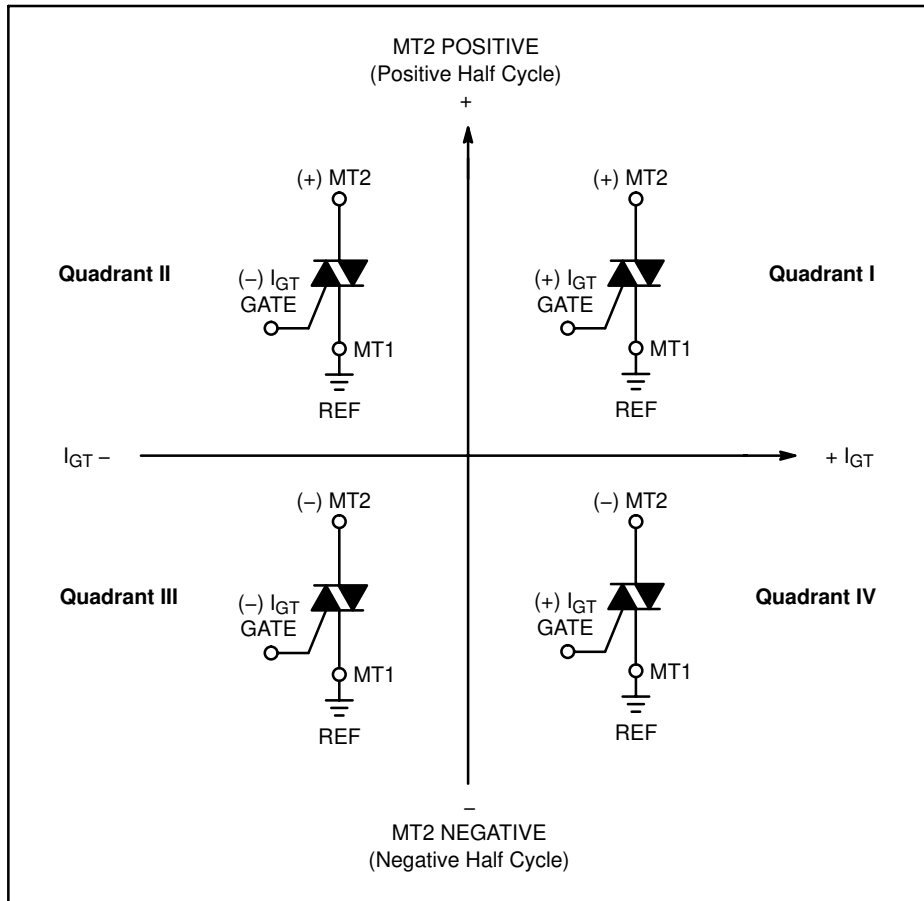
MAC3030-8

Voltage Current Characteristic of Triacs (Bidirectional Device)

Symbol	Parameter
V_{DRM}	Peak Repetitive Forward Off State Voltage
I_{DRM}	Peak Forward Blocking Current
V_{RRM}	Peak Repetitive Reverse Off State Voltage
I_{RRM}	Peak Reverse Blocking Current
V_{TM}	Maximum On State Voltage
I_H	Holding Current



Quadrant Definitions for a Triac



All polarities are referenced to MT1.
With in-phase signals (using standard AC lines) quadrants I and III are used.

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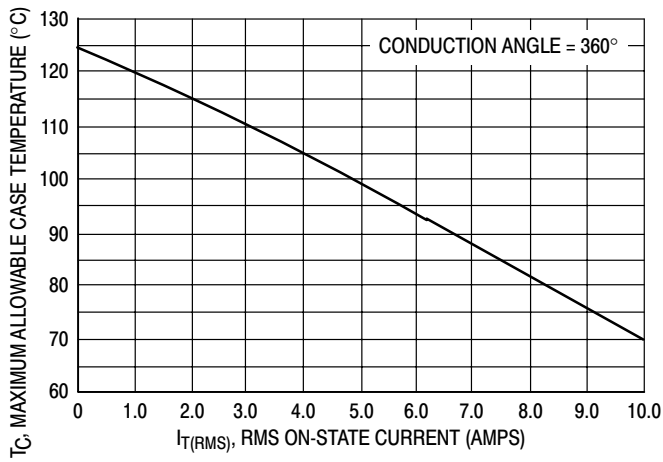


Figure 1. Current Derating

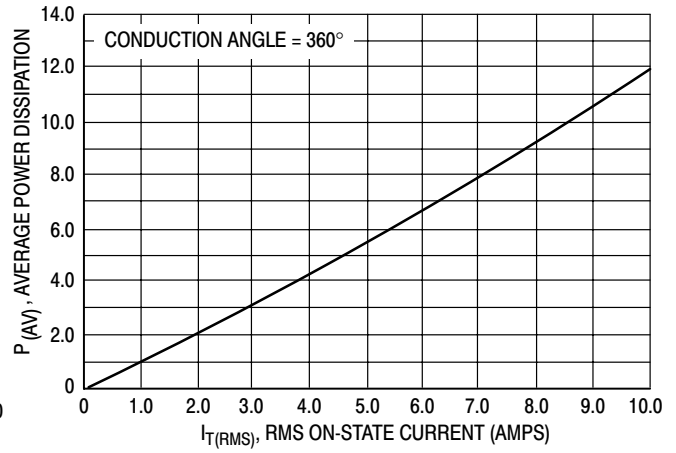


Figure 2. Power Dissipation

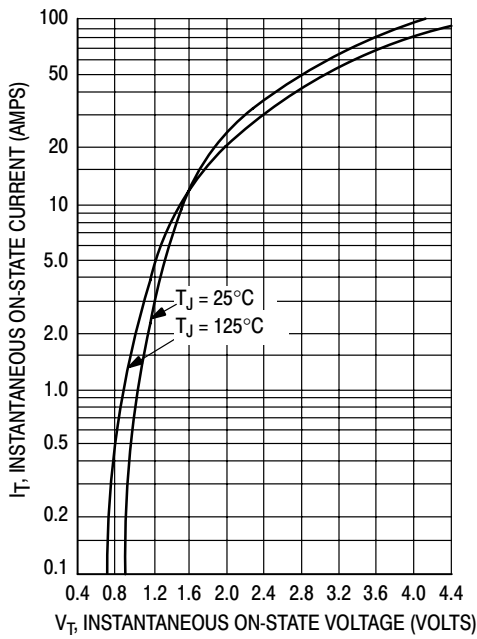


Figure 3. Maximum On-State Characteristics

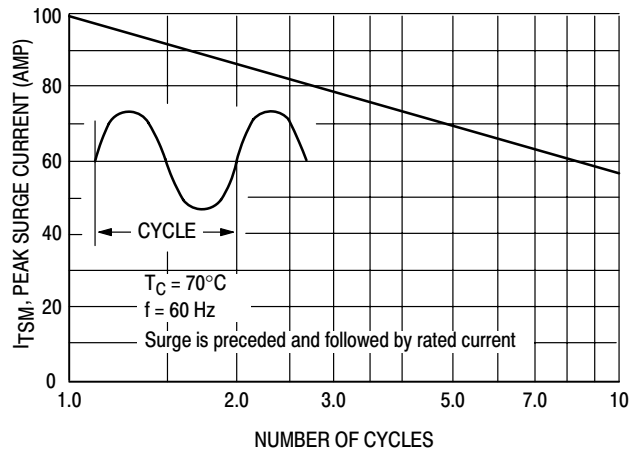


Figure 4. Maximum Non-Repetitive Surge Current

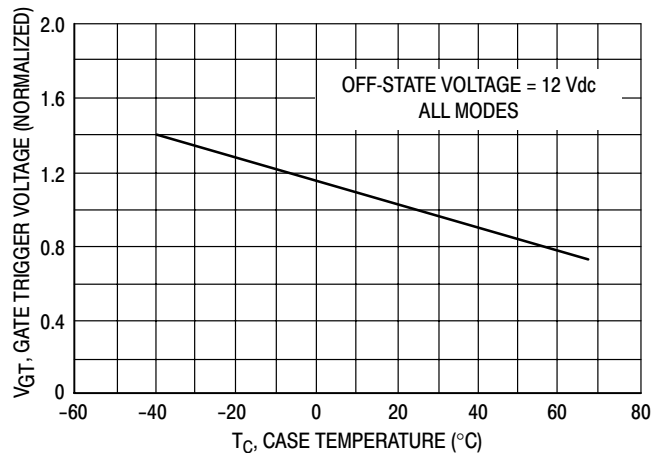


Figure 5. Typical Gate Trigger Voltage

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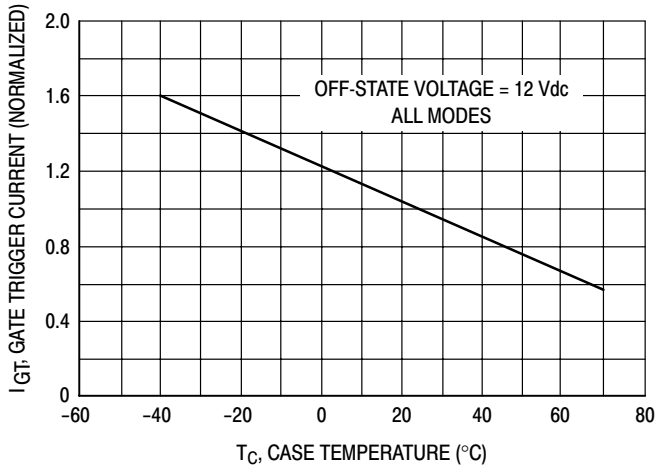


Figure 6. Typical Gate Trigger Current

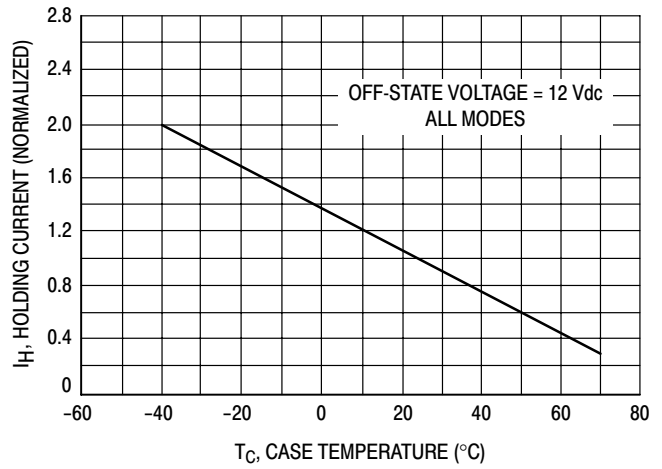


Figure 7. Typical Holding Current

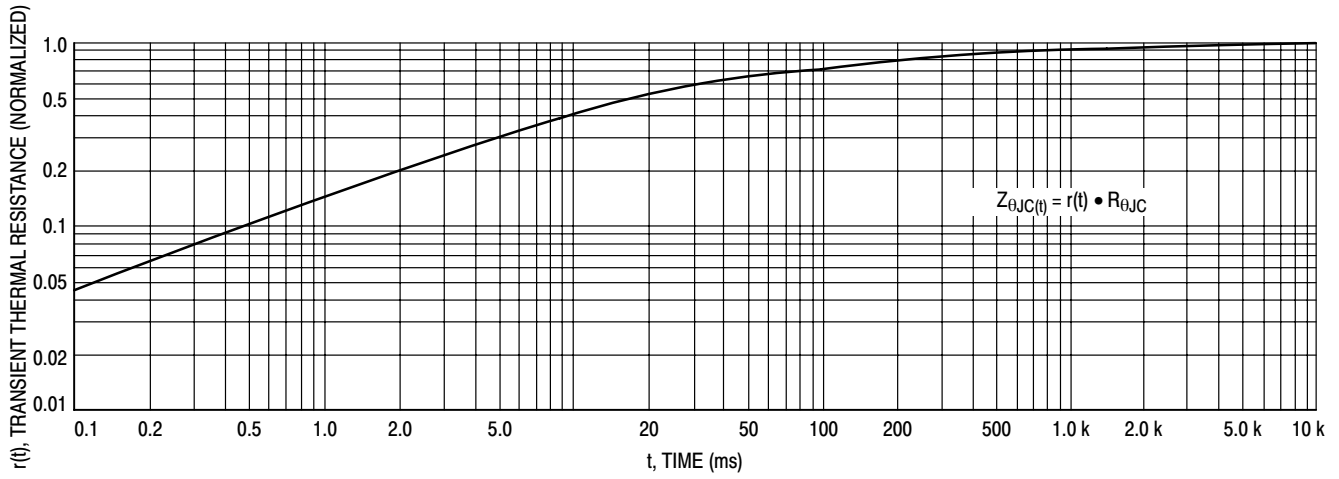
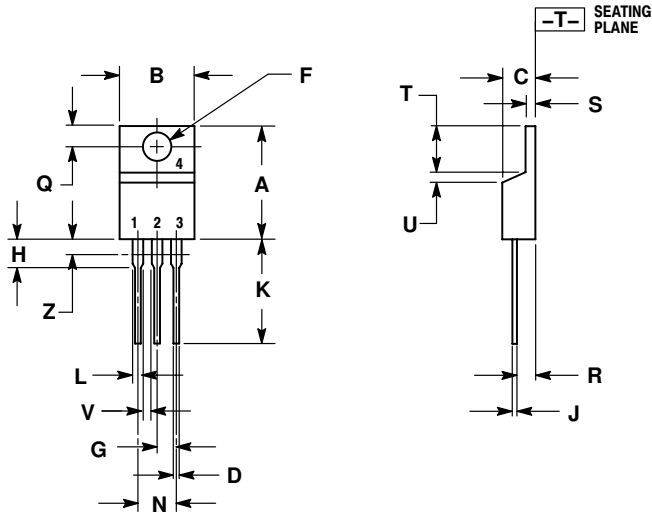


Figure 8. Thermal Response

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PACKAGE DIMENSIONS

TO-220AB
CASE 221A-07
ISSUE AA



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.014	0.022	0.36	0.55
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

- STYLE 4:
PIN 1. MAIN TERMINAL 1
2. MAIN TERMINAL 2
3. GATE
4. MAIN TERMINAL 2

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